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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1995		
BUDGET ACTIVITY 7 - Operational System Development			PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program							
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	66430	37119	17069	16392	12094	9679	20035	28966	Continuing	Continuing
D036 PATRIOT Product Improvement Program	38959	24294	12823	12626	9707	6725	6050	5032	0	333965
D038 AVENGER Product Improvement Program	8177	7892	0	0	0	0	0	0	0	29724
D303 STINGER Product Improvement Program	19294	4933	4246	3766	2387	2954	12986	19942	Continuing	Continuing
D633 THAAD P3I	0	0	0	0	0	0	0	1996	Continuing	Continuing
D634 THAAD GBR P3I	0	0	0	0	0	0	999	1996	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: The changing global threat and the new Army Warfighting Doctrine developed to respond to this changing threat all significantly impact the mission of Air Defense Artillery (ADA). This doctrine calls for US forces to be able to win two nearly simultaneous major regional conflicts and to conduct combat operations characterized by rapid response and a high probability of success while minimizing the risk of significant American casualties. ADA must continually be upgraded and modernized in accordance with the ADA missions. FY 95 is the last year of funding for AVENGER upgrades. The FY 96 and FY 97 budget funds critical improvements to major acquisition programs of PATRIOT and STINGER. The projects support development of upgrades to current equipment and are appropriately funded in Budget Activity 7.</p> <p>Project D036 - The PATRIOT system is being upgraded through a series of individual materiel changes (MC) culminating in the attainment of the PATRIOT Advanced Capability - 3 (PAC-3) system. The communication upgrades improve PATRIOT's above and below battalion communication equipment. These changes eliminate PATRIOT peculiar communications equipment and improve PATRIOT's interoperability between systems and between the services.</p> <p>FY 1994 Accomplishments:</p> <ul style="list-style-type: none"> • P3I Test Program (18838) • Communications Upgrades (17630) • P3I Test Program Sets (1741) • Responsive Threat Analysis (750) 										

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<p>FY 1995 Planned Program:</p> <ul style="list-style-type: none"> • P3I Test Program (11898) • Communications Upgrades (9368) • P3I Test Program Sets (1793) • Responsive Threat Analysis (750) • SBIR/STTR (485) <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • P3I Test Program (6530) • Communications Upgrades (5543) • Responsive Threat Analysis (750) <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • P3I Test Program (5764) • Communications Upgrades (6112) • Responsive Threat Analysis (750) <p>Project D038 - AVENGER Product Improvement Program: The AVENGER PIP permits worldwide employment of AVENGER through the addition of an Environmental Control Unit (ECU, with cooling for hot desert climates) and Prime Power Unit (PPU, to provide power needed to operate ECU under all climatic conditions). Additionally, this PIP will increase the lethality and survivability of the total system through the addition of the Command and Control/Manual, Fire Control-1, Command and Control/Automatic, and improved Remote Control Unit (RCU) subsystems. These subsystems will increase AVENGER's probability of target detection and identification by cueing the gunner to the target location using air track data reported by Army and USMC C2 systems. The gunner can then launch (without delay for visual identification), using the ID data in the C2 report and locally obtained passive sensor data. The STINGER-RMP missile will be far more lethal since the improved fire control can upload software at launch time which is optimized for the specific target of interest. The system will be more survivable because the improved RCU will allow the gunner to engage with full system capability from protected positions such as bunkers. Flight evaluations of Complementary missile utilizing the AVENGER system will provide the Army with the ability to determine complementary capabilities to the STINGER and Air-to-Air STINGER missiles. Project funding in FY 1995 provides for an operational assessment - to include comparison of the ground-to-air Starstreak missile system and STINGER Block II missile system.</p> <p>FY 1994 Accomplishments:</p> <ul style="list-style-type: none"> • Completed FC-1 Design and Development (890) 		

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<ul style="list-style-type: none"> • Integrated IWCS and Incorporated Test Findings (795) • Conducted Test Programs and Assessed System Performance through Technical Tests (700) • Conducted Testbed Simulation Analysis/Ground Test Evaluations of the AVENGER Complementary Missile, with Flight Test 3Q95 (5792) <p>FY 1995 Planned Program:</p> <ul style="list-style-type: none"> • Conduct Inventory Requirements Assessment of Starstreak/STINGER Block II Missiles (110) • Conduct Life Cycle Cost Analysis and Comparison of Adding Starstreak/STINGER Block II with Launch Platform Modifications to Army Inventory (180) • Conduct Operational Effectiveness of Starstreak vs. STINGER Block II (1800) • Conduct Target Acquisition and Tracking Capabilities Analysis of Starstreak vs. STINGER Block II (3436) • Conduct Performance Evaluations of Starstreak vs. STINGER Block II Utilizing Simulations Considering Battlefield Environments (2200) • SBIR/STTR (166) <p>Project D303 - STINGER Product Improvement Program: This project provides a product evolution of the STINGER-RMP to improve countermeasures capability via externally loaded software, which is downloaded from a reprogrammable module in the gripstock. This concept allows for timely upgrades to correct system deficiencies, rapid reaction to new threats or threat countermeasures, development of specialty software programs where full capability may not be desired, and accommodation of new missions. The Block I upgrade project, which adds a roll sensor and enhanced software, solves the</p> <p>recognized system performance deficiencies in countermeasures and other engagement conditions and increases terminal accuracy. The Block II program is a development of an advanced infrared (IR) Focal Plane Array Seeker which improves the performance of the missile in clutter. The program develops the improved missile for adaptation to any or all of the STINGER firing platforms, extends the missile service life and establishes a government post deployment software support posture. The abbreviated Block II EMD program provides for contractor format technical data package, design qualification of guidance section conducted as part of the production qualification, and platform integration.</p> <p>FY 1994 Accomplishments:</p> <ul style="list-style-type: none"> • Completed Phase I (Reactive Countermeasures & Low Beta) (4000) • Performed Hardware Integration Testing (2000) • Finalized Block I Hardware Design and Documentation (2519) • Completed Phase II Software Concepts (6775) • Conducted Testing of Phase I Software Design (2500) • Performed Phase II Software Checkout (1500) <p>FY 1995 Planned Program:</p>		

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7 - Operational System Development		0203801A Missile/Air Defense Product Improvement Program		
<ul style="list-style-type: none"> • Demonstrate the Broad Area Announcement (BAA) 2.75" Infrared (IR) Focal Plane Array (FPA) Seeker Head (2900) • Initiate Miniaturization of the 2.75" IR FPA Electronics Package (1000) • Initiate Target Identification and Countermeasure Algorithms for the 2.75" IR FPA Seeker (929) • SBIR/STTR (104) <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • Conduct Testing of Phase II Software (2467) • Perform Software CDR and Release ECP (1200) • Perform Block I Performance Assessment (579) <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • Complete Block I Performance Assessment (721) • Develop Unmanned Vehicle-Specific Software (2500) • Flight Demonstration (545) 				
B. Program Change Summary	<u>FY 94</u>	<u>FY 95</u>	<u>FY 96</u>	<u>FY 97</u>
Previous President's Budget	65230	24610	17826	17637
Appropriated Value	65230	37119		
Adjustments to Appropriated Value (Total PE)	1200			
a. SBIR/STTR (-1000)				
b. Reprogrammed into PE (+2200)				
Current President's Budget Submit	66430	37119	17069	16392

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program					PROJECT D036	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D036 PATRIOT Product Improvement Program	38959	24294	12823	12626	9707	6725	6050	5032	0	333965
C. Other Program Funding Summary										
	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To Compl</u>	<u>Total Cost</u>
Missile Procurement, Army										
Budget Activity 2 - PATRIOT (C49100)	40587	8799	5070	2970	0	0	0	0	0	9637145
Budget Activity 3 - PATRIOT Mod (C50700)	18526	25976	6988	11895	15399	16801	38777	21144	35369	490615
D. Schedule Profile										
	<u>FY 1994</u>			<u>FY 1995</u>		<u>FY 1996</u>		<u>FY 1997</u>		
Communications Upgrade	1	2	3	4	1	2	3	4	1	2
Contractor Test & Evaluation		X*								
Development Test & Evaluation				X						
Initial Operational Test & Evaluation					X					
*Completed										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1995	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT	
7 - Operational System Development			0203801A Missile/Air Defense Product Improvement Program			D036	
A. Project Cost Breakdown							
			<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	
Contract Engineering Support			30910	17240	8543	8401	
Program Management Support			3278	2400	1500	1450	
Developmental Test and Evaluation			4771	4654	2780	2775	
Total			38959	24294	12823	12626	
B. Budget Acquisition History and Planning Information							
Performing Organizations							
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994		
						<u>FY 1994</u>	<u>FY 1994</u>
						<u>FY 1995</u>	<u>FY 1996</u>
						<u>FY 1997</u>	
							Budget to Complete
							Total Program
Product Development Organizations							
Raytheon							
DAAH0182CA18					3722		3722
1							
DAAH0187CA02					22455		22455
5							
DAAH0189C045					23228		23228
8							
DAAH0192C003					5000		5000
6							
Small Contracts					1168		1168
General Electric							
DAAH0187CA00					4824		4824
6							
Brunswick Corp							
DAAH0189C016					3100		3100
7							
Martin Marietta							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1995		
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program							
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program	
1	DAAH0192C030	SS/CPFF	15Jul92	5463	5463	1463	1500	1500	1000		5463	
2	Raytheon											
2	DAAH0191C060	SS/CPIF	22Apr92	20702	20702	9486	8816	2400			20702	
6	DAAH0192C000	SS/CPAF	27Jan92			35866	20594	13340	7543	8401	18181	103925
Support and Management Organizations												
8	DAAH0187CA00					2270						2270
7	DAAH0190C048					6266						6266
5	DAAH0194C010	C/CPAF	31Jan94				2093	1600	1000	1000	2174	7867
IN-HOUSE SPT						8295	1185	800	500	450	1120	12350
Test and Evaluation Organizations												
	RDEC/MICOM	1095					2749	2210	1265	1260	Cont'd	Cont'd
	WSMR	1095					1000	1000	500	500	Cont'd	Cont'd
	OGAs	MIPR					1022	1444	1015	1015	Cont'd	Cont'd
	RDEC+OGAs					90606					6039	111625
Government Furnished Property: None												
Subtotal Product Development						110312	30910	17240	8543	8401	18181	193587
Subtotal Support and Management						16831	3278	2400	1500	1450	3294	28753
Subtotal Test and Evaluation						90606	4771	4654	2780	2775	6039	111625
Total Project						217749	38959	24294	12823	12626	27514	333965

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program					PROJECT D038	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D038 AVENGER Product Improvement Program	8177	7892	0	0	0	0	0	0	0	29724
C. Other Program Funding Summary										
	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To Compl</u>	<u>Total Cost</u>
Missile Procurement, Army										
C14900 AVENGER Sys Sum	135232	13676	31441	6754						925990
CE8710 AVENGER Mods	9318	10801								24236
D. Schedule Profile Last year of funding for Project D038 is FY 94, therefore no milestones or events are provided.										
	FY 1994			FY 1995			FY 1996		FY 1997	
Complete Starstreak on Avenger Flight Tests	1	2	3	4	1	2	3	4	1	2
						X				4

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7 - Operational System Development			0203801A Missile/Air Defense Product Improvement Program			PROJECT D038
A. Project Cost Breakdown						
	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>		
Project Management In-House	166	545				
Project Management Matrix Support	4446	2512				
Major Development Contractor		2760				
Contracted Services	2725	775				
Other Government Agencies	840	1300				
Total	8177	7892				
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	
					<u>FY 1994</u>	<u>FY 1994</u>
					<u>FY 1995</u>	<u>FY 1996</u>
					<u>FY 1997</u>	<u>Budget to Complete</u>
						<u>Total Program</u>
Product Development Organizations						
Targets Mgt Ofc	1095	3Q95			2150	2150
RDEC	1095	3Q95			1181	1181
RDEC	1095	Various			2512	2512
Dev Contractors	Various	Various		12847	10087	12847
Aggregate	Various	Various			2928	10394
Other Govt Agen	MIPR	Various			640	640
Support and Management Organizations: None						
Test and Evaluation Organizations: None						
Government Furnished Property: None						
Subtotal Product Development					13655	29724
Subtotal Support and Management					8177	
Subtotal Test and Evaluation					7892	
Total Project					13655	29724

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BUDGET ACTIVITY 7 - Operational System Development			PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program						PROJECT D303	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D303 STINGER Product Improvement Program	19294	4933	4246	3766	2387	2954	12986	19942	Continuing	Continuing
C. Other Program Funding Summary										
	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	To Compl	Total Cost
Missile Procurement, Army	23754									1136241
C18500 STINGER-RMP Missile										
C20000 Modifications	9600	4965	10095	10146	10234	10303	15926	17516	Cont'd	Cont'd
D. Schedule Profile										
	<u>FY 1994</u>			<u>FY 1995</u>			<u>FY 1996</u>		<u>FY 1997</u>	
	1	2	3	4	1	2	3	4	1	2
Initiate Block I Dev Flight Tests			X							
Block I Qualification					X					
Acquisition Tests, IR Imaging Seeker Assy					X					
Block I CDR Software ECP							X			
Block I Performance Assessment							X			
Complete Block I Dev Flight Tests							X			
Initiate Future Software Development									X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE					
BUDGET ACTIVITY						February 1995					
7 - Operational System Development						PE NUMBER AND TITLE					
						0203801A Missile/Air Defense Product					
						PROJECT					
						D303					
						Improvement Program					
A. Project Cost Breakdown											
					<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>			
Project Management In-House					412	104	132	118			
Project Management Matrix Support					2445	929	1624	1441			
Major Development Contractor					10524	3900	2382	2111			
Contracted Services					3979		59	53			
Other Government Agencies					1934		49	43			
Total					19294	4933	4246	3766			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Hughes Msl Sys	SS-CPIF	Apr 92	30310	30310	7700	10524	3900	2382	2111	3693	30310
Targets Mgmt Ofc	MIPR	Apr 94				2100					2100
BSFV Aggregate	Various	Various			7028						7028
Block I Aggregate	Various	Various			1482	6670		1864	1655	1648	13319
Block II Aggregate	Various	TBD					1033			32928	33961
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development					16210	19294	4933	4246	3766	38269	86718
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project					16210	19294	4933	4246	3766	38269	86718

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program				PROJECT D633		
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D633 THAAD P3I	0	0	0	0	0	0	0	1996	Continuing	Continuing
<p>Exhibit R-2 not applicable. Funding will not start until FY 00.</p>										

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program				PROJECT D634		
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D634 THAAD GBR P3I	0	0	0	0	0	0	999	1996	Continuing	Continuing
<p>Exhibit R-2 not applicable. Funding will not start until FY 00.</p>										